

Notice of Allowability

Application No.

10/666,129

Examiner

Sikyin Ip

Applicant(s)

MUNEKATA ET AL.

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/30/07;10/14/07.
2. ☒ The allowed claim(s) is/are 13-19,32,33,37-39 and 42-44.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 7/30/07
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

**SIKYIN IP
PRIMARY EXAMINER**

Art Unit: 1793

Examiner's Amendment

Authorization for this Examiner's Amendment was given by Mr. Michael Tobias on October 14, 2007.

An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 C.F.R. § 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the Issue Fee.

This listing of claims below replaces all prior versions and listings of claims in the application:

13. (currently amended) A lead-free solder alloy consisting of 0.1 - ~~2~~ 1.5 wt% of Cu, 0.001 - 0.1 wt% of P, greater than 0 and at most 0.3 wt % of Ni, and a balance of Sn.

14. (previously presented) A lead-free solder alloy as claimed in claim 13 wherein the content of P is 0.001 - 0.05 wt%.

15. (previously presented) A lead-free solder alloy as claimed in claim 13 wherein the content of P is 0.001 - 0.01 wt%.

16. (previously presented) A solder paste comprising the lead-free solder alloy of claim 13

17. (previously presented) A flow soldered joint connected to an electronic component and formed by flow soldering with a lead-free solder alloy as claimed in claim 13.

18. (previously presented) A soldering method comprising forming a bath of molten solder of the lead-free solder alloy as claimed in claim 13 and contacting an electronic component with

Art Unit: 1793

the molten solder.

19. (previously presented) A method as claimed in claim 18 including contacting the electronic component with a wave of the molten solder

Claims 20 - 31 (cancelled)

32. (previously presented) A flow soldered joint as claimed in claim 17 which connects the electronic component to a printed wiring board.

33. (previously presented) A method as claimed in claim 18 wherein the electronic component is disposed on a printed wiring board while contacting the molten solder.

Claims 34 - 36 (cancelled)

37. (previously presented) A lead-free solder alloy as claimed in claim 13 wherein the content of Cu is 0.3 - 1.5 wt%.

38. (previously presented) A lead-free solder alloy as claimed in claim 13 wherein the content of Cu is 0.4 - 1.0 wt%.

39. (previously presented) A lead-free solder alloy as

claimed in claim 37 wherein the content of P is 0.001 - 0.01 wt%.

Claims 40 - 41 (cancelled)

42. (new) A soldered joint comprising the solder alloy of claim 13.

43. (new) A soldering method comprising connecting an electronic component to another member using the solder alloy of claim 13.

44. (new) A soldering method comprising connecting an electronic component to another member using the solder paste of claim 16.

The following is an Examiner's Statement of Reasons for Allowance: The 132 declaration has shown that claimed Cu and Ni contents are critical for soldering properties.

Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

Art Unit: 1793

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King, can be reached on (571)-272-1244.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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PRIMARY EXAMINER
ART UNIT 1742

S. Ip
October 15, 2007